IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

LEVITON MANUFACTURING COMPANY, INC., Plaintiff	:	
v.	:	Civil No. AMD 03-1701
UNIVERSAL SECURITY INSTRUMENTS, INC., et al., Defendants	:	
SHANGHAI MEIHAO ELECTRIC, INC., Plaintiff/Counter-Defendant	:	
v.	:	Civil No. AMD 03-2137
LEVITON MANUFACTURING COMPANY, INC., Defendant/Counter-Plaintiff	:	

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MEMORANDUM OPINION SETTING FORTH CLAIMS CONSTRUCTION

Leviton Manufacturing Company, Inc. ("Leviton") filed suit against Universal Security Instruments, Inc., and USI Electric, Inc. (collectively "USI"), on June 10, 2003 for, *inter alia*, infringement of six Leviton patents which cover improvements in ground fault circuit interrupter ("GFCI") technology. USI is a customer of Shanghai Meihao Electric, Inc. ("Meihao") and purchases and resells Meihao's GFCIs. On July 23, 2003, Meihao filed a declaratory judgment action against Leviton, alleging, *inter alia*, that Meihao's products at issue, GFCIs equipped with reverse wiring protection, do not infringe any of the six patents and that the patents are invalid and/or unenforceable. Leviton filed a counterclaim against Meihao for infringement of the patents. In July 2004, I consolidated the two cases for purposes of discovery, the *Markman* hearing on claim construction, and other pre-trial proceedings. The *Markman* hearing was held on March 3, 2005.

This opinion sets forth my construction of the claims at issue.

I.

A GFCI protects a consumer from electric shock and electrocution when an electrical device, which is connected to an electrical power source, experiences a ground fault. A ground fault occurs when a separate current path is created in addition to the current flowing from the electrical power source through the electrical device and back to the power source. This may happen, for example, due to wear and tear of the electrical device or when the electrical device becomes wet. When a GFCI detects a ground fault, the GFCI causes the electrical circuit to "trip", i.e., to open, and the flow of current is stopped. After the circuit is interrupted, the GFCI can be reset so that electrical current is again allowed to flow through the electrical circuit.

Leviton is the owner of six patents, U.S. Patent Nos. 6,040,967 (the "'967 patent"), 6,381,112 (the "'112 patent"), 6,282,070 (the "'070 patent"), 6,246,558 (the "'558 patent"), 6,288,882 (the "'882 patent"), and 6,437,953 (the "'953 patent") (collectively the "Leviton Patents"), which cover improvements in GFCI technology. The patents are interrelated. The parent patent is the '967 patent. The '112 patent is a continuation[1] of the '967 patent, the '070 patent is a continuation-in-part[2] of the '967 patent, the '882 patent is a continuation-in-part of the '070 patent,

[1]A continuation application is an application that is filed during the pendency of an application previously filed by the same inventor, that discloses and claims only subject matter disclosed and claimed in the original or parent application, and that is entitled to the parent's filing date. *See* 35 U.S.C. § 120 and 37 CFR § 1.53(d).

[2]A continuation-in-part application is an application that is filed during the pendency of an application previously filed by the same inventor, that has some subject matter in common with the parent application, and that also contains new subject matter. A continuation-in-part application is entitled to the filing date of the parent application only with respect to subject matter common to both applications. *See* 35 U.S.C. § 120 and 37 CFR § 1.53(b).

the '558 patent is a continuation-in-part of the '070 patent, and the '953 patent is a continuation of the '558 patent.

The Leviton Patents are based in part on a previous design sold by Leviton and described in U.S. Patent No. 4,595,894 (the "'894 patent"), which expired on June 17, 2003. The design described in the '894 patent used sensing circuitry to detect a current imbalance created when a ground fault occurred, and a trip mechanism to separate the electrical contacts to interrupt the flow of electrical current in response to the ground fault. The prior art GFCI generally utilized a wholly mechanical resetting mechanism. After the GFCI had been tripped, the user would push a reset button to activate a system of levers and gears which would close the electrical contacts so that electrical current once again could flow through the device.

In the prior art GFCI, the consumer was able to reset a GFCI after it had been tripped even if the GFCI was damaged and could no longer provide protection from a ground fault. In contrast, the patents at issue here introduced a "reset lock-out" feature which improves consumers' safety by preventing the GFCI from being reset after it has incurred some damage and can no longer provide ground fault protection. The '894 design was modified so that the sensing circuitry and, in turn, the trip mechanism, are activated when the reset button is pushed. The "reset lock-out" feature ties the resetting of the GFCI device with the circuit interrupting feature such that everything that would have to be operating properly in order to detect a ground fault and interrupt the circuit must be operating properly in order to be able to reset the device.

As of the date of the *Markman* hearing, the claims in dispute were reduced to the following: claims 1, 5, 7, and 12 of the '967 patent; claims 1, 5, and 22 of the '112 patent; claims 1, 8, and 10 of the '070 patent; claims 1, 2, and 4 of the '558 patent; and claims 1, 5, 7, and 14 of the '953

patent.[3] The contested limitations can be grouped into five categories, such that the disputes revolve around the construction of five terms and phrases: (1) "reset lock-out;" (2) "reset mechanism;" (3) "activates said circuit interrupter;" (4) "operational" (and "non-operational"); and (5) "trip mechanism" (as used in the '070 patent). Each of the disputed limitations from the respective patents and claims is set forth below.[4]

The '967 patent

Claim 1

> A circuit interrupting device comprising:
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> * * *
>
> a *reset lock-out* responsive to the occurrence of said predefined condition such that said *reset lock-out* is operable between a lock-out position wherein said *reset lock-out* inhibits resetting of said electrical connection between said input and output conductors and a reset position wherein said *reset lock-out* does not inhibit resetting of said electrical connection between said input and output conductors; and
> a *reset mechanism* operatively associated with said *reset lock-out* and said circuit interrupter such that activation of said *reset mechanism activates said circuit interrupter* which facilitates movement of said *reset lock-out* from said lock-out position to said reset position by said *reset mechanism*.

Claim 5

> The circuit interrupting device according to claim 1, wherein said *reset mechanism* comprises:
> a reset button coupled to said *reset lock-out*; and
> a reset contact that is activated when said reset button is depressed.

Claim 7

> A ground fault circuit interrupting device comprising:

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[3]The parties no longer dispute the proper construction of any of the claims of Patent No. 6,288,882 (the "'882 patent").

[4]The disputed terms and phrases are italicized for emphasis below. They are not italicized in the patents.

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a *reset mechanism* having a *reset lock-out* responsive to *activation of said circuit interrupter* so as to be movable between a lock-out position wherein said *reset lock-out* inhibits resetting of said electrical connection between said input and output conductors and a reset position wherein said *reset lock-out* does not inhibit resetting of said electrical connection between said input and output conductors, wherein when said *reset mechanism* is activated said *circuit interrupter is activated* to facilitates [sic] movement of said *reset lock-out* from said lock-out position to said reset position by said *reset mechanism* and resets said electrical connection between said input and output conductors.

Claim 12

A circuit interrupting device comprising:

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reset lock-out means responsive to *activation of said circuit interrupting means* for inhibiting resetting of said electrical connection between said input and output conductor means after said circuit interrupting means breaks said connection between said input and output conductor means; and *reset means* disposed within said housing means for *activating said circuit interrupting means* so that said *lock-out means* does not inhibit resetting of said electrical connection between said input and output conductor means and for resetting said electrical connection between said input and output conductor means.

The '112 patent

Claim 1

A circuit interrupting device comprising:

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a *reset mechanism* configured to make electrical continuity between the first and second conductive paths after said predetermined condition occurs; and
a *reset lock-out* that prevents the making of electrical continuity between said first and second conductive paths if said circuit interrupter is in the *non-operational* state; and
wherein activation of the *reset mechanism activates the circuit interrupter* to be in the *operational* state to move the *reset lock-out* to a reset position.

Claim 5

A circuit interrupting device comprising:

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a *reset mechanism* configured to reestablish electrical continuity between the first and second conductors after said predetermined condition occurs; and
a *reset lock-out* that prevents reestablishment of electrical continuity between said first and second conductors if said circuit interrupter is *non-operational*.

Claim 22

A circuit interrupting device comprising:

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a *reset device* configured to reestablish electrical continuity between the first and second conductors after said discontinuity is caused; and
a *reset lock-out device* that prevents reestablishment of electrical continuity between said first and second conductors if said third electrical conductor is not connected to a neutral line; and
wherein activation of the *reset device activates the circuit interrupter* to be in the *operational* state to move the *reset lock-out device* to a reset position.

The '070 patent

Claim 1

A circuit interrupting device comprising:

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a *reset lockout* responsive to the occurrence of said predetermined condition such that said *reset lockout* is operable between a lockout position wherein said *reset lockout* inhibits resetting of said electrical connection between said input and output conductors and a reset position wherein said *reset lockout* does not inhibit resetting of said electrical connection between said input and output conductors;
a *reset mechanism* operatively associated with said *reset lockout* and said circuit interrupting mechanism such that activation of said *reset mechanism activates said circuit interrupting mechanism* which facilitates movement of said *reset lockout* from said lockout position to said reset position by said *reset mechanism*; and
a *trip mechanism* disposed within said housing and accessible from an exterior surface of said housing, said *trip mechanism* being operable between a trip state where the electrical connection between said input and output conductors is broken and a set state where the electrical connection between said input and output conductors is capable of being made.

Claim 8

The circuit interrupting device according to claim 4, wherein said *reset mechanism*

comprises:

a reset button operatively coupled to said *reset lockout*; and

a reset contact electrically connected to said sensing circuitry, such that depression of said reset button causes one of said input or output conductors to contact said reset contact and *activate said circuit interrupting mechanism* to break an electrical connection between said input and output conductors.

Claim 10

A circuit interrupting device comprising:

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a *reset mechanism* having a *reset lockout* responsive to *activation of said circuit interrupter* so as to be movable between a lockout position wherein said *reset lockout* inhibits resetting of said electrical connection between said input and output conductors and a reset position wherein said *reset lockout* does not inhibit resetting of said electrical connection between said input and output conductors, wherein when said *reset mechanism* is activated *said circuit interrupter is activated* to facilitate movement of said *reset lockout* from said lockout position to said reset position by said *reset mechanism* and resets said electrical connection between said input and output conductors; and

a *trip mechanism* disposed within said housing and accessible from an exterior surface of said housing, said *trip mechanism* being operable between a trip state where the electrical connection between said at least one input conductor and said at least one output conductor is broken and a set state where the electrical connection between said at least one input conductor and said at least one output conductor is capable of being made.

The '558 patent

Claim 1

A circuit interrupting device comprising:

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a *reset portion* disposed at least partially within said housing and configured to reestablish electrical continuity in said phase and neutral conductive paths;

said circuit interrupting device further comprising a *reset lockout portion* that prevents reestablishing electrical continuity in said phase and neutral conductive paths if said circuit interrupting portion is *non-operational*, if an open neutral condition exists or if a reverse wiring condition exists, wherein said *reset portion* comprises:

a reset button; and

at least one reset contact which when depressed is capable of contacting at least a portion of said phase conductive path to cause said predetermined condition, wherein if said circuit interrupting portion is *operational*, the *circuit interrupting portion is activated* to disable said *reset lockout portion* and facilitate reestablishing electrical continuity in said phase and neutral conductive paths, and wherein if said circuit interrupting portion is *non-operational*, said *reset lockout portion* remains enabled so that reestablishing electrical continuity in said phase and neutral conductive paths is prevented.

Claim 2

A circuit interrupting device comprising:

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a *reset portion* disposed at least partially within said housing and configured to make electrical continuity between said first and second conductive paths and between said first and third conductive paths;
said circuit interrupting device further comprising a *reset lockout portion* that prevents the making of electrical continuity between said first and second conductive paths and between said first and third conductive paths, if said circuit interrupting portion is *non-operational*;
and wherein said *reset portion* comprises:

a reset button; and

at least one reset contact which when depressed is capable of contacting at least a portion of one of said first or second conductive paths to cause said predetermined condition, wherein if said circuit interrupting portion is *operational*, said *circuit interrupting portion is activated* to disable said *reset lockout portion* and facilitate making of electrical continuity between said first and second conductive paths and between said first and third conductive paths, and wherein if said circuit interrupting portion is *non-operational*, said *reset lockout portion* remains enabled so that making of electrical continuity between said first and second conductive paths and between said first and third conductive paths is prevented.

Claim 4

A circuit interrupting system comprising:

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a circuit interrupting device . . .

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wherein said circuit interrupting device comprises

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a *reset portion* disposed at least partially within said housing and configured to reestablish electrical continuity in said phase and neutral conductive paths;
said circuit interrupting device further comprising a *reset lockout portion* that prevents reestablishing electrical continuity in said phase and neutral conductive paths if said circuit interrupting portion is *non-operational* or if an open neutral condition exists;
and wherein said *reset portion* comprises:

a reset button; and

at least one reset contact which when depressed is capable of contacting at least a portion of said phase conductive path to cause said predetermined condition, wherein if said circuit interrupting portion is *operational*, said *circuit interrupting portion is activated* to disable said *reset lockout portion* and facilitate reestablishing electrical continuity in said phase and neutral conductive paths, and wherein if said circuit interrupting portion is *non-operational*, said *reset lockout portion* remains enabled so that reestablishing electrical continuity in said phase and neutral conductive paths is prevented.

The '953 patent

Claim 1

A *reset lockout device* comprising:
a reset connection to a switch for enabling a reset of the switch from a tripped position to a normal position, wherein the switch includes a switch trip condition sensor and a switch trip actuator for tripping the switch from the normal position to the tripped position in response to an indication from the switch trip condition sensor;
a test connection to the switch for enabling a test of the switch trip condition sensor and the switch trip actuator;
a *reset actuator* connected to the test connection and reset connection having a rest position, a test position for initiating the test and a reset position for initiating the switch reset to place the switch in a normal position; and
a *reset actuator lockout* connected to the *reset actuator* for blocking the enabling of the switch reset unless the test succeeds.

Claim 5

A circuit interrupting device comprising:

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a *reset portion* disposed at least partially within said housing and configured to reestablish electrical continuity in said phase and neutral conductive paths;

said circuit interrupting device further comprising a *reset lockout portion* that prevents reestablishing electrical continuity in said phase and neutral conductive paths if said circuit interrupting portion is *non-operational*, if an open neutral condition exists or if a reverse wiring condition exists, wherein said *reset portion* comprises:
a reset button; and
at least one reset contact which when depressed is capable of contacting at least a portion of said phase conductive path to cause said predetermined condition, wherein if said circuit interrupting portion is *operational*, the *circuit interrupting portion is activated* to disable said *reset lockout portion* and facilitate reestablishing electrical continuity in said phase and neutral conductive paths, and wherein if said circuit interrupting portion is *non-operational*, said *reset lockout portion* remains enabled so that reestablishing electrical continuity in said phase and neutral conductive paths is prevented;

Claim 7

The circuit interrupting device according to claim 6, wherein said *reset portion* causes said plurality of contacts of said phase and neutral conductive paths to close.

Claim 14

A circuit interrupting device for use with an electrical wiring system having at least one conductor comprising:

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a *reset portion* configured to reestablish electrical continuity in said first conductive path and said second conductive path;
a *reset lockout portion* that prevents reestablishing electrical continuity in said first conductive path and said second conductive path if said circuit interrupter is *non-operational* or if an open neutral condition exists;
wherein activation of said *reset portion* first simulates at least one of the predetermined conditions, wherein if said circuit interrupter is *operational*, the circuit interrupter causes said *reset lockout portion* to be disabled to facilitate reestablishing electrical continuity in said first and second conductive paths.

II.

The principles of claim construction are well-established. A patent's claims provide the formal definition of a patented invention. *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.,* 849 F.2d 1430, 1433 (Fed. Cir.1988) (citing *Autogiro Co. of Am. v. United States,* 181 Ct.Cl. 55, 384 F.2d 391, 395-96 (1967)). The claims are construed from the perspective of a person of ordinary

skill in the field of invention. *Hoechst Celanese Corp. v. B.P. Chems. Ltd.,* 78 F.3d 1575, 1578 (Fed. Cir.1996).

Although the analytical focus of claim construction begins with and remains centered on the language of the claims themselves, *Honeywell Int'l, Inc. v. Int'l Trade Comm'n*, 341 F.3d 1332, 1338 (Fed. Cir. 2003), a construing court may consider other sources. A court principally consults the evidence intrinsic to the patent, including the claims, the specification, and the relevant prosecution history. *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004). Extrinsic evidence, such as expert and inventor testimony, dictionaries, and learned treatises, also may be used. *Markman v. Westview Instr., Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Extrinsic evidence may aid the court in understanding scientific principles, technical terms, and terms of art appearing in the patent and prosecution history and may "demonstrate the state of the prior art at the time of the invention." *Id*.

Although it is improper to read a limitation from the patent specification into claims, claims must be read in view of the specification, of which they are a part. *Id*. at 979; *see also Apple Computer, Inc. v. Articulate Sys., Inc.*, 234 F.3d 14, 25 (Fed. Cir. 2000) (patent claim "must be interpreted in light of the teachings of the written description and purpose of the invention described therein"). The Federal Circuit Court of Appeals has observed:

> The specification, of which the claims are part, teaches about the problems solved by the claimed invention, the way the claimed invention solves those problems, and the prior art that relates to the invention. These teachings provide valuable context for the meaning of the claim language.

Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1554 (Fed. Cir. 1997). Another purpose for examining the specification is to determine if the patentee has limited the scope of the claims. *Watts v. XL Sys., Inc.*, 232 F.3d 877, 882 (Fed. Cir. 2000). If the specification clearly

excludes a particular feature, "that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.,* 242 F.3d 1337, 1341 (Fed. Cir. 2001); *see also Multiform Desiccants, Inc. v. Medzam, Ltd.,* 133 F.3d 1473, 1479 (Fed. Cir. 1998). A patentee also may limit the scope of the claims by disclaiming a particular interpretation during prosecution of the patent. *Microsoft Corp. v. Multi-Tech Systems, Inc.*, 357 F.3d 1340, 1347 (Fed. Cir. 2004).

Pursuant to 35 U.S.C. § 112, ¶ 6, a claim limitation can be expressed as a means for performing a given function without specifying the structure for performing that function. 35 U.S.C. § 112, ¶ 6; *Chiuminatta Concrete Concepts v. Cardinal Indus.,* 145 F.3d 1303, 1307-08 (Fed. Cir. 1998). Section 112, ¶ 6 provides:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6 (2001).

Use of the term "means" in a claim creates a presumption that the limitation is to be construed in accordance with § 112, ¶ 6. *QSIndustries, Inc. v. Mike's Train House, Inc.,* 230 F.Supp.2d 1240, 1244 (D. Or. 2002) (citing *Kemco Sales, Inc. v. Control Papers Co., Inc.,* 208 F.3d 1352, 1361 (Fed. Cir. 2000)). That presumption may be rebutted, however, when the claim element recites sufficiently definite structure to perform the specified function. *Envirco Corp. v. Clestra Cleanroom, Inc.*, 209 F.3d 1360, 1364 (Fed. Cir. 2000). Absence of the term “means” raises a presumption that § 112, ¶ 6 does not apply. *Personalized Media Communications, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 704 (Fed. Cir. 1998) (citing *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d

1206, 1213 (Fed. Cir. 1998)). That presumption may be rebutted when the claim element does not recite sufficiently definite structure to perform the specified function. *Mas-Hamilton,* 156 F.3d at 1214. As an aid in determining whether sufficient structure is recited by a term used in a claim limitation, the Federal Circuit has considered "whether the 'term, as the name for structure, has a reasonably well understood meaning in the art.'" *Watts*, 232 F.3d at 880-81 (quoting *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996)).

The court employs a two-step process for construing means-plus-function limitations. First, the court uses ordinary principles of claim construction to determine the function as explicitly set forth in the claims. *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.,* 296 F.3d 1106, 1113 (Fed. Cir. 2002). Second, the court determines, from the perspective of one of ordinary skill in the art, what structure, if any, disclosed in the specification corresponds to the claimed function. *Id.* Any such specification must clearly associate the structure with the performance of the function. *Id.*

Having identified the rules of construction, I next turn to construe the relevant claims of the patents at issue.

III.

A. "Reset lock-out"

Each of the five patents at issue claim a "reset lock-out" and similar terms, such as "reset lock-out means," "reset lockout," "reset lock-out portion,""reset lock-out device," "reset lockout device," "reset actuator lockout," and "reset lockout portion" (collectively, the "reset lock-out terms").[5] The parties agree that all of these terms are synonymous.[6] The main disagreement between

[5]Considering only the claims in dispute, the reset lock-out terms appear in the following claims and in the following formats: '967 patent, claims 1, 5, and 7 ("reset lock-out") and 12 ("reset (continued...)

the parties is whether the "reset lock-out" limitations are means-plus-function limitations; Meihao argues that they are, while Leviton argues that they are not. With the exception of claim 12 in the '967 patent, none of the disputed "reset lock-out" limitations uses the term "means" or catch phrase "means for." The failure to use the term "means" is not dispositive of whether § 112, ¶ 6 applies. *Personalized Media*, 161 F.3d at 703-04; *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1427 (Fed. Cir. 1997).

Leviton argues that a claim term is not subject to § 112, ¶ 6 simply because it is written in functional language, especially when many devices take their names from the functions they perform. *See Greenberg*, 91 F.3d at 1583 (citing as examples of such devices a "filter," "brake,"

(...continued)
lock-out means"); '112 patent, claims 1 and 5 ("reset lock-out") and 22 ("reset lock-out device"); '070 patent, claims 1, 8, and 10 ("reset lockout"); '558 patent, claims 1, 2, and 4 ("reset lockout portion"); '953 patent, claims 1 ("reset lockout device" and "reset actuator lockout") and 5 and 14 ("reset lockout portion").

[6]The parties are correct that the reset lock-out terms are synonymous, with the exception of the "reset lockout device" of claim 1 of the '953 patent, which is the only reset lock-out term contained in a preamble. The preamble of claim 1 of the '953 patent recites a "reset lockout device," followed by the transitional term, "comprising." The body of the claim recites: "a reset connection to a switch for enabling a reset of the switch from a tripped position to a normal position, wherein the switch includes a switch trip condition sensor and a switch trip actuator for tripping the switch from the normal position to the tripped position in response to an indication from the switch trip condition sensor; a test connection to the switch for enabling a test of the switch trip condition sensor and the switch trip actuator; a reset actuator connected to the test connection and reset connection having a rest position, a test position for initiating the test and a reset position for initiating the switch reset to place the switch in a normal position; and a *reset actuator lockout* connected to the reset actuator for blocking the enabling of the switch reset unless the test succeeds." (Emphasis added.) The "reset lockout device" and one of the elements comprising it-- the "reset actuator lockout"-- are clearly not synonymous. Reading these two terms in the context of the other claims in the patent and the specification, it is clear that "reset actuator lockout" is synonymous with "reset lockout portion" of claim 5 of the '953 patent (and with the other reset lock-out terms), while the "reset lockout device" of the preamble to claim 1 is equivalent to "circuit interrupting device" in the preamble to claim 5.

"clamp," "screwdriver," and "lock"). Leviton maintains that a reset lock-out is such a device and the mere fact that the term "reset lock-out" uses functional language does not subject the term to § 112, ¶ 6. Referring to the claim language of a "lock-out position" and a "reset position," as well as to illustrative embodiments in the patent specifications, Leviton asserts that "reset lock-out" is the name of a structure.

Leviton misstates the proper inquiry for determining whether a claim limitation invokes § 112, ¶ 6. Leviton must show that the claim limitation itself recites sufficient structure, not merely that the patent suggests that some structure or structures carry out the recited function. *See Sage Prods.*, 126 F.3d at 1427-28 (stating that "where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts *within the claim itself* to perform entirely the recited function, the claim is not in means-plus-function format") (emphasis added). At this threshold step, when the court is ascertaining whether a claim recites sufficient structure, the court looks not to the specification but to the claim.

I find that all of the "reset lock-out" limitations are § 112, ¶ 6 means-plus-function limitations. Each "reset lock-out" limitation is drafted as a function to be performed, rather than as a definite structure. Claim 1 in the '967 patent, for example, recites that "said reset lock-out is operable between a lock-out position wherein said reset lock-out inhibits resetting of said electrical connection between said input and output conductors and a reset position wherein said reset lock-out does not inhibit resetting of said electrical connection between said input and output conductors." Similarly, claim 5 in the '112 patent claims a circuit interrupting device comprising "a reset lock-out that prevents reestablishment of electrical continuity." The claim language says nothing about structure; all it says is that some unknown structure performs certain functions. *See Mas-Hamilton*,

156 F.3d at 1214 (holding that § 112, ¶ 6 applied because the claimed "lever moving element" was "described in terms of its function not its mechanical structure").

As an aid in determining whether sufficient structure is recited by a term used in a claim limitation, the Federal Circuit has considered "whether the 'term, as the name for structure, has a reasonably well understood meaning in the art.'" *Watts*, 232 F.3d at 880-81 (citing *Greenberg*, 91 F.3d at 1583). Leviton directs this court to no evidence that "reset lock-out" has a generally understood structural meaning in the art. The deposition testimony of Leviton's own expert, Dr. Jaime De La Ree, and Leviton's Vice President, Steve Campolo, demonstrates that "reset lock-out" has no standard meaning. Dr. De La Ree admitted that he had never used the term "reset lock-out" until his work on this litigation and that a person of ordinary skill in the art would be unable to define the structure of a so-called "reset lock-out" apart from the context of specific patents. *See* De La Ree Dep. Tr. at 95-96. Mr. Campolo stated in his deposition that he had never heard the term "reset lock-out" before his initial meeting with the inventors and that the only structure he associated with the term "lock-out" was a padlock. *See* Campolo Dep. Tr. at 30-31.

The function of the reset lock-out is to inhibit resetting of the electrical connection unless the circuit interrupter is operational (in other words, to inhibit resetting of the electrical connection if the circuit interrupter is non-operational),[7] if an open neutral condition exists, or if the circuit interrupting device is reverse wired.[8] The "Summary" of the '967 parent patent states that the reset

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[7]*See infra*, Part III D, for construction of the terms "operational" and "non-operational," which also are disputed by the parties.

[8]The '967, '070, and '112 patents cover circuit interrupting devices capable of locking out the reset portion of the device if the circuit interrupting portion is non-operational or if an open neutral condition exists. *See* '967 patent Abstract; '070 patent Abstract; '112 patent Abstract. The (continued...)

lock-out mechanism "prevents the resetting of electrical connections (or continuity) between input and output conductors if the circuit interrupter used to break the connection is non-operational or if an open neutral condition exists." *See* '967 patent, col. 1-2, ll. 67-4; *see also id.*, col. 6, ll. 38-42 ("[u]sing the reset lock-out feature described above permits the resetting of the GFCI device . . . only if the circuit interrupter (or circuit interrupting mechanism) is operational"). The same or similar text appears in each of the patents in suit. *See* '112 patent, col. 1-2, 66-5; '070 patent, col. 1, ll. 26-28; '558 patent, col. 2, ll. 9-20; '953 patent, col. 2, ll. 9-20. This function is consistent with the description of the reset lock-out feature by the inventor, Nick DiSalvo, as set forth in one of his notebooks:

> My definition of Reset Lockout is that a device with Reset Lockout is inhibited from being Reset unless the device is functional as determined by the supervisory circuit within the device.

Ziegler Dep. Tr. Ex. 4 at 1. William Ziegler, co-inventor of patents '070, '558, and '953,[9] described the term "reset lock-out" by stating that "we use the term or have used the term reset lockout as applied to Nick's [DiSalvo's] original idea where if the device would not function it would lockout, it would lockout the reset." Ziegler Dep. Tr. at 117.

In the '967 patent, the structures disclosed for performing the "reset lock-out" function are the latch finger[10] 64 of the latch member 60 interacting with the contact arm 70. The below figures

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(...continued)
'558 and '953 patents cover circuit interrupting devices capable of locking out the reset portion of the device if the circuit interrupting portion is non-operational, if an open neutral condition exists, or if the circuit interrupting device is reverse wired. *See* '558 patent, col. 12, ll. 20-25; '953 patent, col. 12, ll. 57-62.

[9]Ziegler is also co-inventor of the '882 patent, which is no longer at issue.

[10]The "latch finger" is sometimes described in the patents as the "latching finger", and the (continued...)

from the '967, '112, and '070 patents depict the relevant structures in the patents: Whether the reset lock-out inhibits resetting of the electrical connection is determined by the position of the latching finger 64 in relation to the remote end 73 of the contact arm 70. After a trip occurs, the latching finger 64 of the latching member 60 moves into a position that is directly to the left of the remote end 73 of the contact arm 70. When the latching finger is in this "lock-out" position, it prevents the contact arm 70 from moving left, thereby keeping movable contact 72 from engaging fixed contact 74 so that electrical continuity cannot be restored. *See* '967 patent, col. 6, ll. 9-11 ("the latch member 60 is in a lock-out position where latch finger 64 inhibits movable contact 72 from engaging fixed contact 74"). Activation of the reset mechanism eventually results in the latch finger 64 moving from the left to the right side of the remote end 73 of the movable contact arm 70, into a "reset" position. *See* '967 patent, col. 6, ll. 12-34. Release of the reset button 30 then causes the latching member 60 and latching finger 64 to move leftward, pushing the contact arm 70 leftward, so that contact point 72 engages contact point 74, restoring electrical continuity.[11] *See* '967 patent, col. 6, ll. 34-37.

(...continued)
"latch member" is sometimes described in the patents as the "latching member." The adjectives "latch" and "latching" are interchangeable in the context of the patents.

[11]The corresponding structures in the '112 and '070 patents are the same as in the '967 patent. *See* '112 patent, col. 6, ll. 10-38; '070 patent, col. 6, ll. 19-27. The corresponding structures in the '558 and '953 patents are latch finger 102, latch member 100, and movable contact arms 50 and 70. *See* '558 patent, col. 7, ll. 44-47; '558 patent, col. 8, ll. 17-24; '953 patent, col. 7, ll. 44-47; '953 patent, col. 8, ll. 17-24.

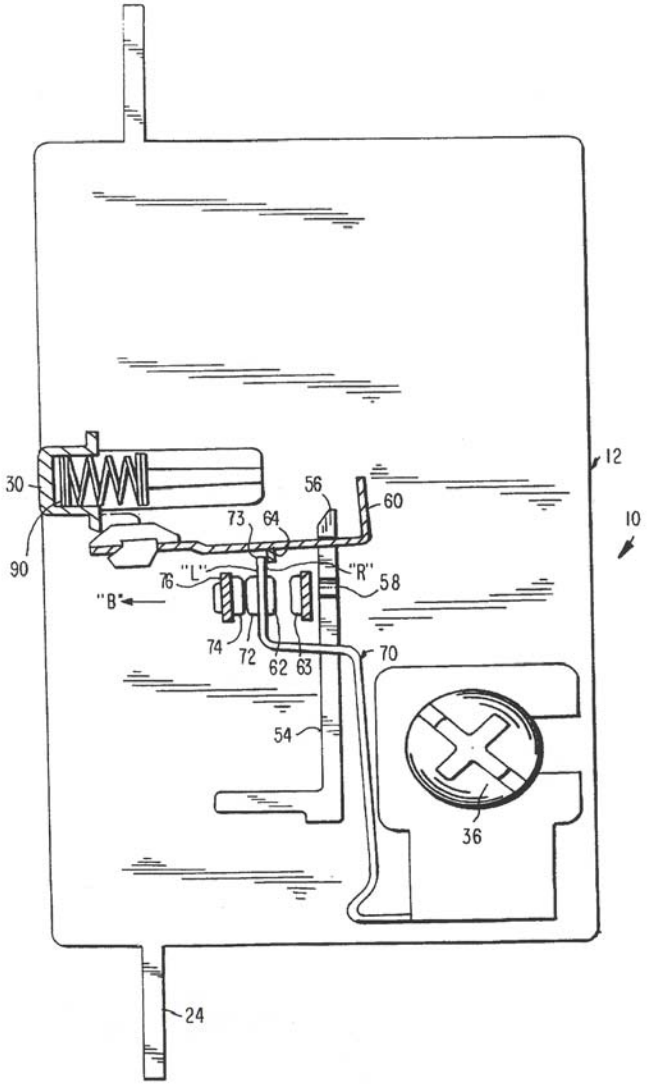

FIG. 5, ‘967/’112/’070 patents

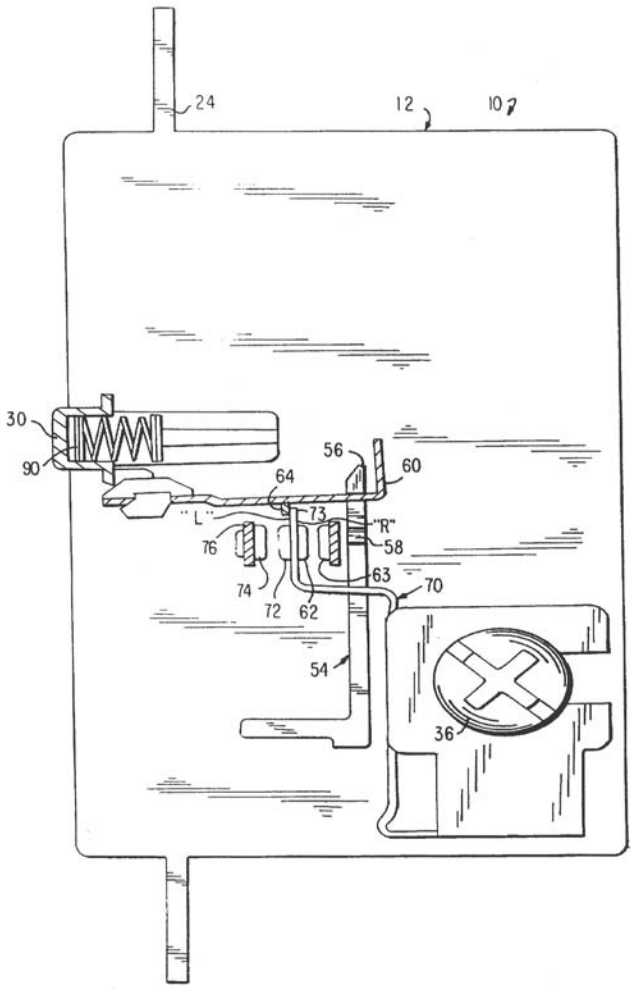

FIG. 6, '967/'112/'070 patents

Applying § 112, ¶ 6, a "reset lock-out" must be construed as the latching finger of the latching member working in cooperation with the contact arm,[12] and equivalents thereof that perform

[12]There may be two sets of latch members and contact arms, one set for the phase conductors (continued...)

the identical function of inhibiting the resetting of the electrical connection unless the circuit interrupter is operational.

B. "Reset mechanism"

Each of the patents in suit claims a "reset mechanism" and similar terms such as "reset means," "reset portion," "reset actuator," and "reset device" (collectively, the "reset terms").[13] As with the reset lock-out terms, the parties agree that the reset terms are synonymous and disagree about whether the limitations containing the reset terms are means-plus-function limitations. With the exception of "reset means" in claim 12 of the '967 patent, none of the disputed "reset" limitations uses the term "means" or catch phrase "means for." Thus, there is a rebuttable presumption that § 112, ¶ 6 does not apply. *See Personalized Media*, 161 F.3d at 704.

Leviton acknowledges that the term "reset" connotes a function but contends that, in the context of the patent specifications, the claim term recites sufficient structure such that § 112, ¶ 6 does not apply. Meihao maintains that "reset mechanism" does not connote a definite structure to a person of ordinary skill in the art and that the claim language does not recite sufficient structure.

The limitations containing reset terms can be grouped into two categories: (1) limitations drafted in purely functional language, and (2) limitations that recite both function and structure.

(...continued)
and another set for the neutral conductors. *See* '967 patent, col. 5-6, ll. 65-2; '112 patent, col. 5-6, ll. 66-3; '070 patent, col. 6, ll. 45-50; '558 patent, col. 7, ll. 44-52; '558 patent, col. 8, ll. 57-60; '953 patent, col. 7, ll. 44-52; '953 patent, col. 8, ll. 57-60.

[13]Considering only the claims in dispute, the reset terms appear in the following claims and in the following formats: '967 patent, claims 1, 5, and 7 ("reset mechanism") and 12 ("reset means"); '112 patent, claims 1 and 5 ("reset mechanism") and 22 ("reset device"); '070 patent, claims 1, 8, and 10 ("reset mechanism"); '558 patent, claims 1, 2, and 4 ("reset portion"); and '953 patent, claim 1 ("reset actuator") and 5, 7, and 14 ("reset portion").

Limitations[14] in the first category include, *inter alia*, (1) '967/1(f) ("a reset mechanism operatively associated with said reset lock-out and said circuit interrupter such that activation of said reset mechanism activates said circuit interrupter which facilitates movement of said reset lock-out from said lock-out position to said reset position by said reset mechanism"); (2) '112/1(e) ("a reset mechanism configured to make electrical continuity between the first and second conductive paths after said predetermined condition occurs"); and(3) '953/7 ("said reset portion causes said plurality of contacts of said phase and neutral conductive paths to close").[15] By contrast, each of the limitations in the second category recites some structure, namely, a "button" and a "contact," one of which is "depressed" in order to activate the circuit interrupter which, in turn, activates the reset lock-out mechanism. *See*, *e.g.*, '967/5 ("said reset mechanism comprises: a reset button coupled to said reset lock-out; and a reset contact that is activated when said reset button is depressed"); '558/1(e) ("said reset portion comprises: a reset button; and at least one reset contact which when depressed is capable of contacting at least a portion of said phase conductive path to cause said predetermined condition").[16]

The limitations in the first category are means-plus-function limitations. None recites any structure. As with the reset lock-out limitations, the claim language merely recites what a reset

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[14]For ease of reference, I shall refer to a limitation by using the following format: patent number/claim number(limitation). For example, I describe the sixth limitation of claim 1 of the '967 patent as '967/1(f). After a claim's preamble and transitional language, the first limitation is designated with an "(a)" and each successive indented section is designated in alphabetical order.

[15]The other limitations in this category are: '967/7(e); '967/12(f); '070/1(f);'070/10(e); '112/1(g); '112/5(e); '112/22(g); '112/22(i); '558/1(d) ;'558/2(f); '558/4(h); '953/1(d); '953/5(d); '953/14(g); and '953/14(i).

[16]The other limitations in this category are: '070/8; '558/2(h)(i)(j); '558/4(j)(k)(l); and '953/5(e)(f)(g).

mechanism *does*, not what it *is*, structurally. Further, Leviton adduces no evidence to demonstrate that "reset mechanism" (or "reset portion" or "reset actuator" or "reset device") has a reasonably well understood meaning as a structure to a person of ordinary skill in the art. Pursuant to § 112, ¶ 6, the limitations in this first category must be construed to cover the structures disclosed in the specification and equivalents thereof that perform the specified function.

The primary function of the reset mechanism is to allow an interrupted circuit to be reset, i.e., to reestablish electrical continuity between the input and output conductive paths or conductors after continuity has been broken. To accomplish this, the reset mechanism works in conjunction with the circuit interrupter and the reset lock-out. *See*, *e.g.*, '967/1(f) ("a reset mechanism operatively associated with said reset lock-out and said circuit interrupter such that activation of said reset mechanism activates said circuit interrupter which facilitates movement of said reset lock-out from said lock-out position to said reset position by said reset mechanism"). In other words, activation of the reset mechanism tests the operation of the circuit interrupter, which, if operational, disables the reset lock-out. *See*, *e.g.*, '967 patent, col. 1, ll. 14-18 ("the present application is directed to a reset system in such devices and systems which is capable of being 'locked out' such that it cannot be reset by a user if a portion of a circuit interrupting mechanism becomes non-operational or if an open neutral condition exists").

In the '967, '070, and '112 patents, the structures associated with the reset function include reset button 30, return spring 90, movable latching member(s) 60, latching finger(s) 64, movable contact arm(s) 70, reset contacts 62 and 63, and reset contacts 72 and 74. The following figures from the '967, '112, and '070 patents depict the relevant structures in the patents:

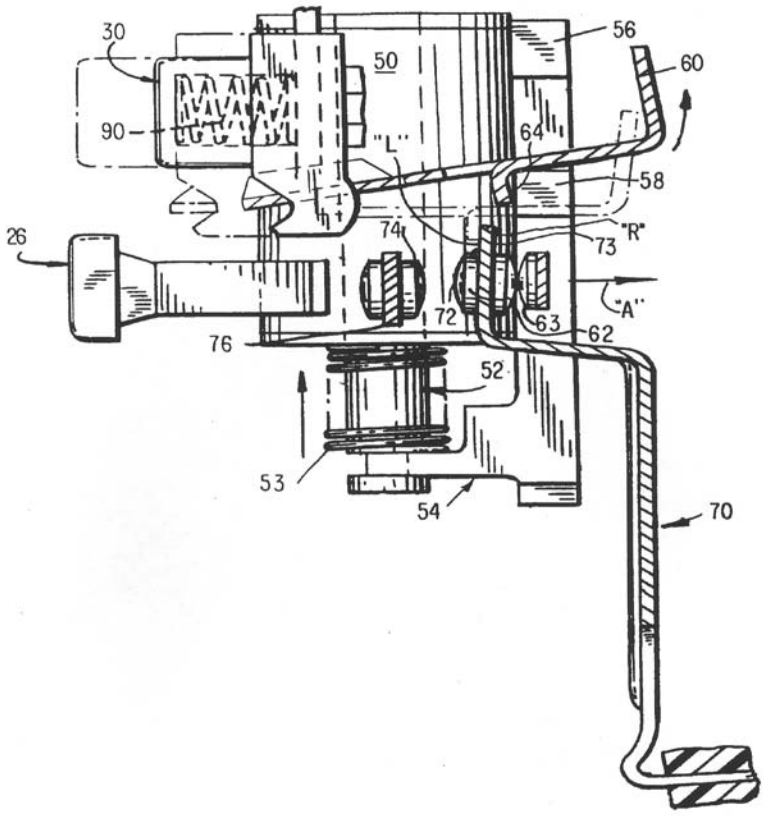

FIG. 4, ‘967/’112/ patents

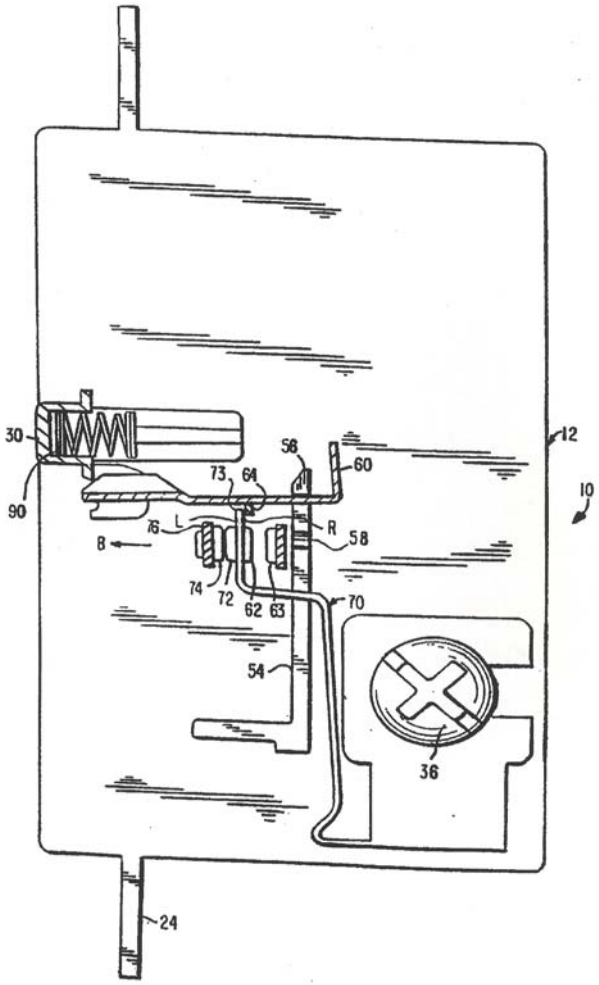

FIG. 5, ’070 patent

The specification of the ‘967 patent, for example, teaches that “[t]he reset mechanism includes reset button 30, movable latching member 60 connected to the reset button 30 and reset contacts 62 and 63 that temporarily activate the trip mechanism when the reset button is depressed.”‘967 patent, col. 5, ll. 41-44. The specification of the ‘967 patent describes the reset mechanism more specifically as

follows:

> To reset the GFCI receptacle so that contacts 72 and 74 are closed and continuity between the input and output conductors is reestablished, the reset button 30 is depressed sufficiently to overcome the bias force of return spring 90 and move the latch member 60 in the direction of arrow A, seen in FIG. 4. While the reset button 30 is being depressed, latch finger 64 contacts side L of the movable contact arm 70 and continued depression of the reset button 30 forces the latch member to overcome the stress force exerted by the arm 70 causing the reset contact 62 on the arm 70 to close on reset contact 63.
>
> ***
>
> Release of the reset button causes the latching member 60 and movable contact arm 70 to move in the direction of arrow B until contact 72 electrically engages contact 74.

'967 patent, col. 6, ll. 12-22 and 34-37. *See also* '112 patent, col. 6, ll. 13-23 and 35-38; '070 patent, col.6, ll. 65-67, col. 7, ll. 1-8 and 25-28. In the '558 and '953 patents, the structures described in the specification for performing the reset function include reset button 30, return spring 120, movable latching member(s) 100, latch finger(s) 102, movable contact arms 50 and 70, reset contacts 104, 106, 52, 62, 56, 66, 72, 82, 76, and 86. *See* '558 patent, col. 7, ll. 19-29; '558 patent, col. 8, ll. 25-35 and 52-56; '953 patent, col. 7, ll. 19-29; '953 patent, col. 8, ll. 25-35 and 52-56.[17]

I turn now to the limitations in the second category. None of the limitations uses the word "means," triggering the presumption that § 112, ¶ 6 does not govern. Nevertheless, Meihao can rebut

[17]Reestablishing electrical continuity in the phase conductive path utilizes contact arm 50, contacts 52 and 56, and contacts 62 and 66, whereas reestablishing electrical continuity in the neutral conductive path utilizes contact arm 70, contacts 72 and 76, and contacts 82 and 86. *See* '953 patent, col. 6, ll. 36-42 and 46-50 ("the conductive path between the line phase connection 34 and the load phase connection 36 includes contact arm 50 . . . movable contact 52 . . . and fixed contact 56" and "the conductive path between the line phase connection 34 and the user accessible load phase connection includes, contact arm 50, movable contact 62 . . . and fixed contact 66"); '953 patent, col 6, ll. 53-58 and col. 6-7, ll. 63-1 ("the conductive path between the line neutral connection 38 and the load neutral connection 40 includes, contact arm 70 . . . movable contact 72 . . . and fixed contact 76" and "the conductive path between the line neutral connection 38 and the user accessible load neutral connection includes, contact arm 70, movable contact 82 . . . and fixed contact 86").

this presumption if it demonstrates that the limitations fail to recite sufficiently definite structure or else recite a function without reciting sufficient structure for performing that function. *See Watts*, 232 F.3d at 880 (citing *Personalized Media*, 161 F.3d at 704, and *Rodime PLC v. Seagate Tech., Inc.*, 174 F.3d 1294, 1302 (Fed. Cir. 1999)). These limitations recite a reset mechanism that comprises a "button" and a "contact." A "button," in general usage, connotes structure. *See* Merriam-Webster's Collegiate Dictionary, 156 (10th ed. 1997) (defining "button" as a "push button"). A "contact" also connotes structure. *See id.* at 249 (defining "contact" as "the junction of two electrical conductors through which a current passes" and "a special part made for such a junction"). Although, as discussed *supra*, the "reset" claim terms[18] do not have an understood meaning, as structure, in the art, the claim language describing the reset mechanism as comprising a "button" and "contact" supplies sufficient structure to avoid the ambit of § 112, ¶ 6. *See CCS Fitness Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1370 (Fed. Cir. 2002) (noting that because "the claims themselves describe the 'member' as having a 'rear support and a front end' with one end of this structure circulating around a crankshaft and the other having wheels" and because "a term need not connote a precise physical structure," the claim term "reciprocating member" was not governed by § 112, ¶ 6).

I find that '967/5, a dependent claim, must be interpreted as claiming the circuit interrupting device of claim 1, wherein the reset mechanism has a reset button, which, when depressed, activates a reset contact, and wherein the reset button is coupled to the reset lock-out. Claim 8 of the '070 patent, also dependent, claims the circuit interrupting device of claim 4, wherein the reset mechanism has both a reset button operatively coupled to a reset lock-out, and a reset contact

[18]In this second category of limitations, the claim terms are "reset mechanism" and "reset portion."

electrically connected to the sensing circuitry, such that depression of the reset button causes one of the input or output conductors to come into contact with the reset contact and activate the circuit interrupting mechanism to break an electrical connection between the input and output conductors. In '558/1(e), the phrase, "said reset portion comprises: a reset button; and at least one reset contact which when depressed is capable of contacting at least a portion of said phase conductive path" must be similarly construed to mean what it says: the reset portion has a reset button and at least one reset contact which, when depressed, is capable of contacting at least a portion of the phase conductive path. The identical claim language in '558/4(j)(k)(l) and '953/5(e)(f)(g) has the same construction. The only difference in construing the "reset portion" claimed in '558/2(h)(i)(j) is that, as the plain language indicates, the reset portion's reset contact is capable of contacting at least a portion of one of the first or second conductive paths.

C. "Activates said circuit interrupter"

The claim language, "activates said circuit interrupter," and/or variations of such phrase[19] appear in each of the patents. The parties agree that the "circuit interrupter" includes both the sensing circuitry, which detects a fault or simulated fault, and the trip mechanism, which interrupts the circuit. *See* '967 patent, col. 2, ll. 5-9 ("The circuit interrupter includes a trip mechanism used to cause the mechanical or electrical breaking of continuity between the input and output conductive paths or conductors and the sensing circuitry used to sense faults") and col. 3, ll. 6-7 ("The circuit interrupter includes a trip mechanism and fault sensing circuitry"). The parties disagree, however, as to what it means to say that the circuit interrupter is "activated," in the context of the patents.

Leviton argues that "activating"the circuit interrupter means that the circuit interrupter is

[19]The variations include "enabling said circuit interrupter," "activates said circuit interrupting mechanism," "said circuit interrupter is activated," and the "circuit interrupting portion is activated."

caused to act in a way that permits the reset lock-out to change from a lock-out position to a reset position to allow the interrupted circuit to be reset. According to Leviton, "activating" the circuit interrupter does not require that both the sensing circuitry and the trip mechanism be activated because the plain language of the claims requires only that the circuit interrupter be "activated" to the extent that such activation brings about a claimed result, i.e., the disabling of the reset lock-out so as to permit the resetting of the GFCI device. *See* '967 patent, col. 2, ll. 38-41 ("[a]ctivation of the reset mechanism activates the circuit interrupter which facilitates changing the operable position or state of the reset lock-out from the lock-out position or state to the reset position or state"). Leviton points out that it does not necessarily follow from the fact that the circuit interrupter includes both a trip mechanism and fault sensing circuitry, that the phrase, "activates said circuit interrupter" must be defined as activating *both* the sensing circuitry and the trip mechanism.

Meihao asserts that activating the circuit interrupter means activating or utilizing the sensing circuitry *and* the trip mechanism as when a fault or simulated fault occurs. Meihao maintains that this construction is consistent with the intrinsic evidence, is supported by extrinsic evidence, and is the only construction that makes sense in light of the purpose of the invention, which is that the GFCI device can be reset only if it is able to detect a fault and interrupt the circuit.

Considering the claim language in light of the specifications and the purpose of the inventions, it is clear that Meihao's construction of "activates said circuit interrupter" and related phrases is the proper one. The purpose of the patents in suit is to allow a GFCI to be reset only if the GFCI is able to detect a ground fault and interrupt electrical continuity. The claimed inventions accomplish this by activating the sensing circuitry and the trip mechanism as when a ground fault occurs so that if the invention is able to detect a fault and interrupt electrical continuity, it can be reset, and if its ability to detect a fault and interrupt electrical continuity has been compromised, the

invention is "locked out" and cannot be reset. The GFCI cannot provide fault protection unless both the sensing circuitry and trip mechanism are activated. To ensure that any device built on the basis of the invention will be able to respond to a ground fault that may occur in the future, both the "sensing circuitry and trip mechanism of the circuit interrupter are utilized for resetting the continuity." *See* '967 patent, col. 3, ll. 32-33.

The Summary section of the '967 patent describes this "arrangement of tying the resetting of the device with the operation of the circuit interrupter," '967 patent, col. 3, ll. 45-46, as follows:

> This arrangement prevents the circuit interrupting device from being reset if the circuit interrupter is inoperative, since the circuit interrupter has to be activated in order to reset electrical continuity between the input and output conductive paths or conductors. In other words, this arrangement ensures that once the circuit interrupting device has been reset, it has the ability to again break electrical continuity between the input and output conductive paths because the sensing circuitry and trip mechanism of the circuit interrupter are utilized for resetting the continuity.

Id. at col. 3, ll. 24-33. This paragraph makes it clear that "activating" the circuit interrupter means activating both the sensing circuitry and the trip mechanism. The other patents in suit contain the same or similar language revealing that activating the circuit interrupter must be construed as activating the *entire* circuit interrupter, i.e., its sensing circuitry and trip mechanism. *See*, *e.g.*, '112 patent, col. 3, ll. 25-34 (same language as quoted above); '070 patent, col. 2, ll. 40-45 ("A reset lockout portion prevents the making of electrical continuity between the first and second conductive paths if the circuit interrupting portion is not operating properly (i.e., the components used to make and break electrical continuity fail or the sensing circuitry fails)").

Extrinsic evidence supports the court's construction. Meihao's expert declared that the phrase "activates said circuit interrupter" and similar phrases refer to "activating or utilizing the sensing circuitry and trip mechanism as when a fault or simulated fault occurs." Haynes Decl. at ¶

9. Leviton's expert acknowledged that, at least as claimed in the '967 patent, activating the circuit interrupter means activating both the sensing circuitry and the trip mechanism. De La Ree Dep. Tr. at 39-41, 107.

D. "Operational" (and "non-operational")

Disputed claims in three of the patents use the terms "operational" and "non-operational," to refer to the circuit interrupter.[20] The specification of the '070 patent also uses the terms "operational" and "non-operational." *See*, *e.g.*, '070 patent, col. 3, ll. 27-34.

Leviton defines "operational" as that state in which the circuit interrupter can move the reset lock-out to a reset position (in other words, when the circuit interrupter is able to disable the reset lock-out and allow an interrupted circuit to be reset), and "non-operational" as that state in which the circuit interrupter cannot move the reset lock-out to a reset position (in other words, when the circuit interrupter is unable to disable the reset lock-out and thus unable to allow an interrupted circuit to be reset). Meihao construes "operational" as meaning that the circuit interrupter, when activated, is working properly so that the sensing circuitry and the trip mechanism are fully functional and are able to detect a fault and interrupt the electrical continuity when the fault occurs; "non-operational" would mean not working properly or defective so that the sensing circuitry and trip mechanism are not fully functional and not able to detect a fault and interrupt the electrical continuity when the fault occurs.

As discussed *supra*, the purpose of the patents in suit is to improve consumers' safety by allowing a GFCI to be reset only if the GFCI is able to detect a ground fault and interrupt electrical continuity. The inventions accomplish this goal by linking the reset lock-out feature and the reset

[20]See '112/1(f); '112/1(g); '112/5(f); '112/22(f); '112/22(i); '558/1(e); '558/1(g); '558/2(g); '558/2(j); '558/4(i); '558/4(l); '953/5(e); '953/5(g); '953/14(h); '953/14(i).

feature with the operation of the circuit interrupter. The Summary of the '070 patent states as follows:

> Operation of the reset portion and the reset lockout portion are interdependent with the operation of the circuit interrupting portion of the device, such that if the circuit interrupting portion is *operational* when the reset operation is performed, the reset lockout portion is disabled and electrical continuity between the input and output conductive paths is reset. If the circuit interrupting portion is *non-operational (e.g., a component in the circuit interrupting portions* [sic] *sensing circuitry fails or its electro-mechanical components fail)*, the reset operation cannot be completed. In such instances, the reset lockout portion remains enabled and electrical continuity between the input and output conductive paths is not reestablished.

'070 patent, col. 3, ll. 27-39 (emphasis added). The other patents use similar language to convey the same concept. *See*, *e.g.*, '112 patent, col. 3, ll. 25-34; '558 patent, col. 3, ll. 31-48; '953 patent, col. 3, ll. 32-48. The '070 patent makes clear that the reset operation performs a testing function to determine whether the circuit interrupter is "operational." The patent states:

> Using the reset lockout feature described above permits the resetting of the GFCI device or any of the other devices in the family of circuit interrupting devices only if the circuit interrupting portion is operational. Thus, testing of the circuit interrupting portion occurs during the reset operation.

'070 patent, col. 8, ll. 22-26. These passages demonstrate that the term "operational" must be construed to mean "working properly," and further, that both the sensing circuitry and the trip mechanism must be working properly. When the circuit interrupter is "operational," it is able to sense a fault and interrupt electrical continuity in response to the fault. "Non-operational" is the opposite of "operational" and must mean that the sensing circuitry or the trip mechanism, or both, are not working properly, such that the circuit interrupter is either not able to detect a fault or not able to interrupt the electrical continuity when the fault occurs, or both.

Leviton's construction would make the claim language redundant. For example, claim 2 of the '558 patent states that "if said circuit interrupting portion is operational, said circuit interrupting

portion is activated to disable said reset lockout portion." See '558 patent, col. 13, ll. 9-12. If, as Leviton asserts, "operational" means that state in which the circuit interrupter can disable the reset lockout, the claim language in essence would read, "if the circuit interrupter can disable the reset lockout, the circuit interrupter is activated to disable the reset lockout." Claim 14 of the '953 patent also illustrates the absurdity of such a construction. The ninth limitation of that claim reads, "wherein activation of said reset portion first simulates at least one of the predetermined conditions, wherein if said circuit interrupter is operational, the circuit interrupter causes said reset lockout portion to be disabled to facilitate reestablishing electrical continuity in said first and second conductive paths." *See* '953 patent, col. 14, ll. 24-29. Again, it would be redundant to use such claim language if "operational" referred to the ability of the circuit interrupter to disable the reset lock-out feature.

Extrinsic evidence supports the court's construction. Meihao's expert stated that "the term 'operational' means that the circuit interrupter when activated is working properly so that the sensing circuitry and the trip mechanism are fully functional and able to detect a fault and interrupt the electrical current when the fault occurs." Haynes Decl. at ¶ 12. Leviton's expert testified that "operational" means that both the sensing circuitry and the trip mechanism are operational, or are working properly for their intended purpose. De La Ree Dep. Tr. at 146-48, 158-61.

E. "Trip mechanism" ('070 patent)

The parties dispute the meaning of "trip mechanism" as it appears in claims 1 and 10 of the '070 patent. The limitations at issue are '070/1(g) ("a trip mechanism disposed within said housing and accessible from an exterior surface of said housing, said trip mechanism being operable between a trip state where the electrical connection between said input and output conductors is broken and a set state where the electrical connection between said input and output conductors is capable of

being made") and '070/10(f) ("a trip mechanism disposed within said housing and accessible from an exterior surface of said housing, said trip mechanism being operable between a trip state where the electrical connection between said at least one input conductor and said at least one output conductor is broken and a set state where the electrical connection between said at least one input conductor and said at least one output conductor is capable of being made").

Leviton asserts that these limitations must be broadly construed to mean a mechanism, device or system that can operate in a trip state where it interrupts a circuit and a set state where the electrical connection between the input and output conductors is capable of being made. Meihao asserts that the trip mechanism operates to break the continuity between the conductive paths independently of the circuit interrupting mechanism, i.e., independently of that mechanism used to sense faults and break the conductive paths when a fault is sensed.[21]

The '070 patent uses the term "trip mechanism" differently than that term is used in the '967 and '112 patents. A "trip mechanism" and sensing circuitry are components of the "circuit interrupter" (or "circuit interrupting portion" or "circuit interrupting mechanism") in the '967 and '112 patents. *See* '967 patent, col. 2, ll. 5-8 ("The circuit interrupter includes a trip mechanism used to cause the mechanical or electrical breaking of continuity between the input and output conductive paths or conductors and the sensing circuitry used to sense faults");'112 patent, col. 2, ll. 6-9 (same). In the '070 patent, the patentee claimed a circuit interrupting device that includes a "trip

[21]Meihao makes a colorable argument that the terms "circuit interrupting mechanism" and circuit interrupter," as used in the '070 patent, are ambiguous, rendering the claims that include these terms invalid under 35 U.S.C. § 112, ¶ 2. The patentee reverses these two terms, claiming a "circuit interrupting mechanism" that includes a "circuit interrupter that makes and breaks electrical connections," *see*, *e.g.*, claim 4, and also claiming a "circuit interrupter" that includes a "circuit interrupting mechanism that makes and breaks electrical connections," *see*, *e.g.*, claim 13. As the parties have not asked the court to construe these terms, the court need not reach this issue.

mechanism" *in addition to* a circuit interrupting mechanism. *See*, *e.g.*, '070/1 (claiming "a circuit interrupting device comprising: . . . a circuit interrupting mechanism . . . a reset lockout . . . a reset mechanism . . . and a trip mechanism").

The specification of the '070 patent repeatedly states that the trip mechanism operates independently of a circuit interrupting mechanism used to break the electrical connection. *See*, *e.g.*, '070 patent Abstract ("The trip mechanism operates independently of a circuit interrupting mechanism used to break the connection"); '070 patent, col. 1, ll. 21-26 ("the present application is directed to circuit interrupting devices that include a trip portion that can break electrical conductive paths independent of the operation of a circuit interrupting portion used to sense faults and break the conductive paths when a fault is sensed"); col. 2, ll. 45-50 ("A trip portion is also disposed at least partially within the housing and is configured to break the continuity between the conductive paths independently of the circuit interrupting portion operation. In this configuration, the device can be tripped whether or not the circuit interrupting portion is operating properly."). Claims 1 and 10 must be construed consistently with the specification as a whole, which requires that the trip mechanism operate independently of the circuit interrupting portion.[22]

IV.

For the reasons stated herein, this case shall proceed to final judgment on the basis of the

[22]My holding is a narrow one: the trip mechanism operates independently of the circuit interrupting portion. Other than noting that the trip mechanism must be, as the claim language states, "accessible from an exterior surface of said housing," *see*, *e.g.*, '070/1(g), I make no finding as to whether the trip mechanism must include any particular structure or structures. Meihao concedes, as it must, that the "trip mechanism," as that term is used in the '070 patent, can operate mechanically or electrically. *See* '070 patent, col. 4, ll. 45-49 ("Preferably, the trip portion is manually activated and uses mechanical components to break the electrical connections. However, the trip portion may use electrical circuitry and/or electromechanical components to break the electrical connections.")

above claims construction of the patent limitations in suit.

Filed: April 22, 2005

/s/
Andre M . Davis
United States District Judge